S. FORRESTER.

Carriage Axle.

No. 97,622. Patented Dec. 7, 1869.

Fig: 1.

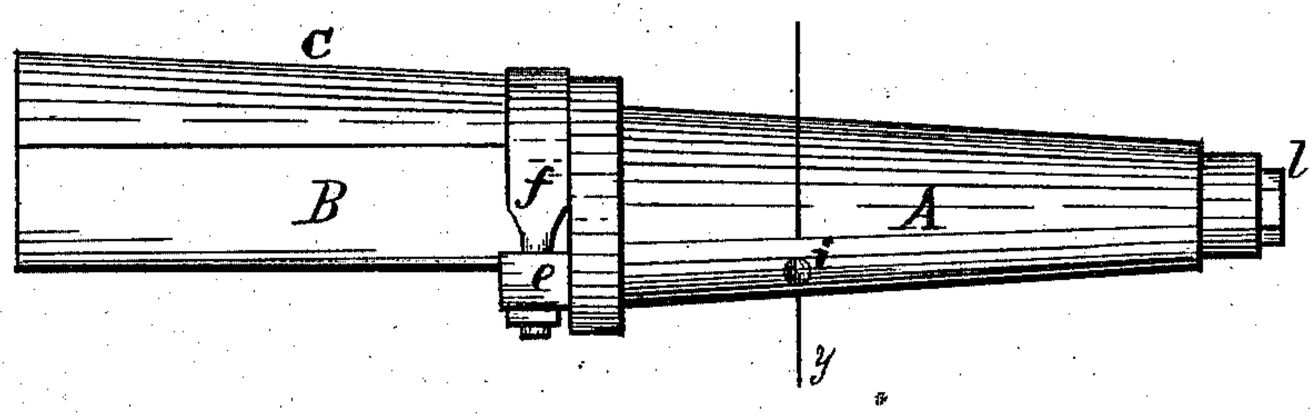


Fig: 2.

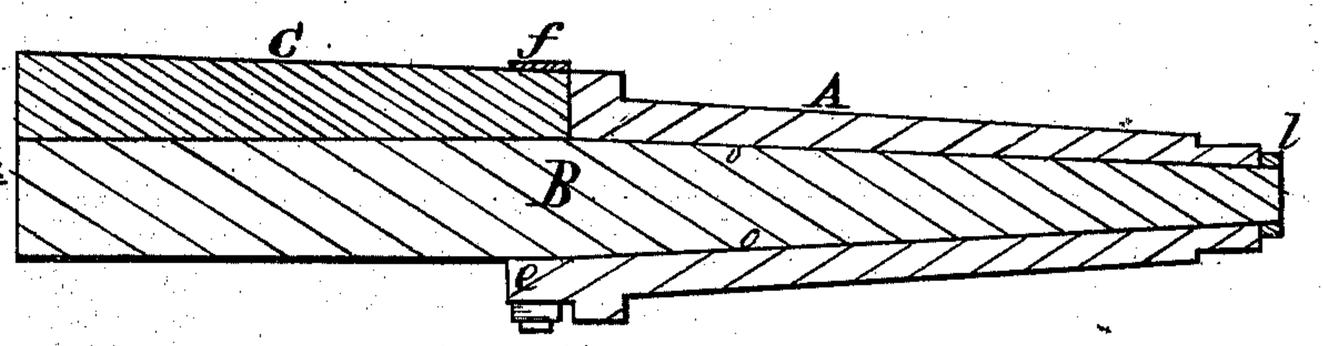


Fig: 3.

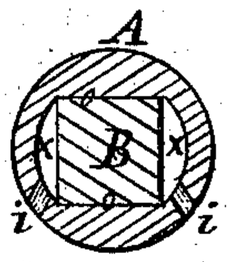
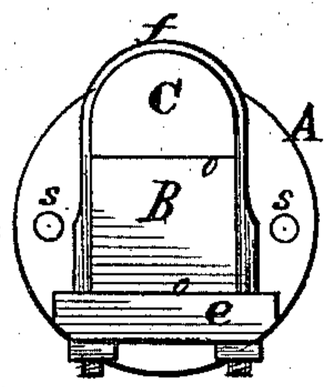


Fig: 4.



Witnesses

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SAMUEL FORRESTER, OF ALLEGHENY, PENNSYLVANIA.

Letters Patent No. 97,622, *dated December* 7, 1869.

IMPROVEMENT IN AXLES FOR CARRIAGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, SAMUEL FORRESTER, of the city and county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in "Spindle for Carriage-Axles;" and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The nature of my invention consists in so constructing the spindle of a carriage-axle, that it shall fit neatly and closely to the upper and lower sides of the axle, and leave, on the back and front sides of it, an oil-chamber; and also, in providing the spindle with a clip-flange for bracing and clamping the wood and spindle to the axle.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawing, which forms part of my specification—

Figure 1 is a side view of my improvement in spindle for carriage-axles.

Figure 2 is a longitudinal section of the same.

Figure 3 is a transverse section of the same, when cut through at line *y*, fig. 1.

Figure 4 is an end view of axle and spindle.

In the accompanying drawing—

A represents the spindle, which may be made of cast-iron or steel, and is cored out so as to fit neatly and closely to the upper and lower sides of the axle B, as shown at *o*, in figs. 2, 3, and 4. By thus fitting the axle in the spindle, it is not liable to break off at the inner end of the spindle, or in the spindle, for it will have no vertical motion. The inner and outer ends of the opening in the spindle are fitted neatly and closely to the axle B, for the purpose of preventing any side motion of the spindle on the axle.

On the front and back sides of the axle B, are oil-chambers *x*, which communicate with the interior of the hub of the wheel of the carriage, through the medium of the openings *i*.

The chambers *x* are filled with oil through the openings *s* in the end of the spindle A.

On the inner end of the spindle is a flange, *e*, which is provided with openings for the ends of the clip *f*.

By means of this flange *e* and the clip *f*, the wood part C, of the axle, and the spindle A may be secured, braced, and clamped firmly to the iron part B, of the axle.

l represents a screw-nut, which is used for the purpose of preventing any motion endways of the spindle on the axle. By filling the oil-chambers *x* with oil, the spindle B will always be properly lubricated.

Having thus described the nature, construction, and operation of my improvement in spindle for carriage-axles,

What I claim as of my invention, is—

Providing the spindle A with the clip-flange *e*, and so constructing the bore of the spindle that it will fit neatly and closely to the upper and lower sides of the axle B, and leave oil-chambers *x* on the back and front sides of it, as herein described, and for the purpose set forth.

SAMUEL FORRESTER.

Witnesses:

JAMES J. JOHNSTON,

JOHN LOCKIE.